Camel management in the hot arid villages of Bikaner district

Champak Bhakat, S N Tandon and M S Sahani

Camel rearing in the hot arid village of Rajasthan

IN spite of fast mechanization in transport system, the camel continue to be an important component of the desert ecosystem where the flora of usually marginal land can hardly meet the requirement of human food and energy. It is popularly known as 'ship of the desert', traversing long distances on sandy stretches carrying men and materials. Camel possesses many unique qualities which make it distinctly superior to other domestic livestock in the hot arid and semi-arid desert ecosystem. The total world camel population is estimated to be 19.286 million of which India has third highest camel population of 1.52 million (FAO 1997) after Somalia and Sudan. The Indian camel population is mostly confined to north-western states, viz. Rajasthan, Gujarat, Haryana and Punjab (93.12% of total Indian camel) with highest intensity of camel in 11 arid districts of Rajasthan (55.7% of total Indian camel population).

(The camel uses various adaptive mechanisms for survival in the desert.

In the dryland ecosystem camel rearing is regarded as fairly resource for sustenance.) The camel is associated with the social culture of the societies inhabiting in the dry lands. Marketing of camel is an important trade in India where it is widely used as draft animal. Camel power for farming use is more economical than a pair of bullocks and in the sandy terrain the camel energy is not only cost-effective but also profitable. Rapid change in agro-ecological condition and industrialization in the recent past has its impact on camel management practices. To obtain optimum profit from camel, it is essential to adopt scientific management practices. This case study present a typology of camel rearing system in the arid villages of Bikaner district of Rajasthan.

Various aspects of camel rearing system have been studied through bench mark survey by camel management unit of NRCC, viz. social status of camel keepers, on-going agriculture practices, number of

Due to erratic pattern of rainfall and low soil productivity, it is very difficult to produce food by the farmers in hot arid villages. Therefore, to ensure a regular income and sufficient food for their families and better living standards of the farmers, it is necessary to go for some other alternate land use-based farming systems or subsidiary enterprises which will provide more income and employment to the farmers. Such enterprises include camel rearing and it may also include other species like cattle, buffalo, sheep and goat etc. for multiple uses. It holds practical values for cost-effectiveness. It is sustainable, environment friendly and socio-culturally acceptable. The idea of sustainability of agriculture and livestock production revolves around better utilization of time, money, resource and family labours of the farmers. The farmers' family gets scope of livestock production, if they adopt improved technologies for this area.

livestock, their breeding practices, commonly occurring diseases, health status, production aspects and sources of revenue of camel owners etc. The present study includes farmers of different villages, viz. Bajju, Lakhusar,

Gadwala and Keshardeshar of Bikaner district. The villages are connected by metalled road. A total of 64 camel keepers were interviewed and a 3-page proforma was filled out for each camel owner.

Bikaner district is located in the north-west arid zone of Rajasthan. The land is dunny and soils are low in nitrogen and organic-matter content. It is naturally eroded by winds during summer. In these areas the crop yields are low and unstable. The socio-economic status of farmers as well as communication and transport infrastructure are also very poor.

The average family size of camel farmers in the villages ranges from 6.86 to 7.76 with overall average of 7.29 individuals. The number of female members of the family exceeds the male. The literacy percentage varies from 19.23 to 30.77. The literacy percentage is found to be higher in the villages which are located near to city. Among the different categories of farmers marginal farmers formed the major group (90.91–96.15%) and some progressive farmers (3.85–8.00%) are also there. The main crops of winter (*rabi*) season are mustard, gram, wheat, under irrigated belt and that of rainy (*kharif*) season are *guar*, mothbean, pearl millet and *til*. In some areas mungbean, cowpea and *isabgul* are also cultivated on small scale. The Bikaneri breed of camels are predominant. Few Jaisalmeri camels are available and some non-descriptive camels are also there. Under village condition the female members of the family are more involved with day-to-day management of camel.

The ratio of camel to other livestock in 4 arid villages of Bikaner district is as below.

Camel : cattle = 1 : 8.74

Camel : buffalo = 1 : 0.32

Camel : sheep and goat = 1 : 13.33

Camel : herbivora = 1 : 22.48

CAMEL PRODUCTION AND MANAGEMENT SYSTEM

The camel trade is not a regular practice in these villages of Bikaner

The comparative economics of camel carting in Bikaner city (Krishi Upasage Mandi) and Gadwala village

	Bikaner city (Krishi Upasage Mandi)	Gadwala village
Average cost of camel (Rs/camel)	10 030	11 500
Average income from carting:		
Income/day (Rs)	299.25	137.20
Carrying cost of each bag (Rs)	4.50	NA
Round/day	3.50	NA
Bags/round	19.00	NA
Distance covering/day (km)	20.50	NA

district except to some extent in few villages. The carting operation is carried out by camel keepers himself and most common type of loads are fuelwood, crop yield, water, vegetables and dry grass etc. The duration of carting per day in these villages varies from 8 to 10 hr, depending on the nature and urgency of work. The annual ploughing days by camel in sandy soil is about 60 days (about 30 days each in *rabi* and *kharif* crop). On an average, the camel is utilized for about 9–10 hr/day for ploughing with some rest in between. The average milk yield of Bikaneri camel ranges from 4.61 to 4.71 kg/day in different villages and the lactation length varied from 8 to 9 months. Milk is primarily used for calf feeding and also used for household consumption depending on availability. Few camel keepers informed that the camel milk is also used for the treatment of disease like enteritis.

The average annual hair production is higher in camel calves as compared to that of adult. In this area the camel were reared under semi-intensive system of management. The fodder of locally grown common crops like moth chara (*Phaseolus aconitifolius*), *guar phalgathi* (*Cyamopsis tetragonoloba*) and *mungphali* chara (*Arachis hypogea*) are commonly utilized as camel feed. The per day consumption of fodder by adult camel varies from 11 to 14 kg offered at 2 intervals, viz. 6–8 kg fodder during day and 5–6 kg in evening time. As a special feeding farmer offered *gur*, oil, *alam*, *azoan* and occasionally offered ghee, *methi*, *haldi*,

to their stud and breeding female during breeding season. The frequency of watering was twice in summer and once in rainy and winter season. Camels in these villages graze for 9–11 hr/day.

BREEDING PRACTICES

The breeding period is confined to winter months extending from November to March. The number of services per conception varies from 1.72 to 2.22. The average age at first breeding ranges from 4.49 to 4.61 years and the average age at first calving varies from 5.51 to 6.02 years.

HEALTH STATUS

The major disease affecting in field area are parasitic mange (up to 80%). There was occasional incidence (10–20%) of trypanosomiasis, specially in irrigated area. Few camels (< 10%) suffer from fever, pneumonia cough and digestive problems. No prophylactic measures are adopted in villages against parasitic or bacterial diseases. However, treatment against mange with Ivermectin injection is reported from few villages. The average annual mortality in young camel calves (up to 1 month age) ranges from 21.34 to 38.09% and in adults 4.21 to 7.00%. As an ethno-veterinary practice camel farmers use only oil or oil + boric powder or sesame oil + kerosin oil + HCH to treat the mange affected camel and they are also using *gur+azoan* to treat cough (*khurak*) case.

ECONOMIC ANALYSIS

The annual economic analysis of

camel keepers under village conditions indicated that the agriculture is the first source of income ranging from Rs 32 900 to 44 000 for marginal and progressive farmers. The camel keepers can earn Rs 62–114/day/camel. It is observed that the income from camel is higher in those villages which are located near to city because the camel keepers have a better approach for sale of their items in regular way. The per day net income from individual cattle and buffalo varies from Rs 38.41 to Rs 48.57. The per day income from individual sheep and goat is Rs 1.95

and 3.70 respectively.

Another survey was conducted in the city area like Bikaner (Krishi Upasage Mandi) and in the village Gadwala on use of camels for carting. Gadwala is an adapted village under transfer of technology project by the National Research Centre on Camel, Bikaner.

The maximum camel carting is done by the camel owner himself in both the places. The other activity of cart owner is agriculture, followed by business. In Gadwala, few farmers are working as labourers, whereas no report regarding this is available from

Bikaner city. The maximum camel cart owners purchase their cart on cash payment in both the places. The average age of camel use for carting purpose is 7.59 years in Bikaner and 8.69 years in Gadwala village. Maximum male camel is used for carting than female in both the places. The Bikaneri camel are predominantly used for carting. It is followed by Jaisalmeri and some non-descriptive camels in both the places. The average working hours (per day) of camel is 7.59–8.88 and working days per year ranges from 235.57 to 247.5.

Foot-and-mouth disease...

(continued from page 31)

Government through the Department of Animal Husbandry and Dairying and other agencies involved.

1. The AICRP on FMD through the work carried out at the Central

Laboratory at the IVRI has the required capability and expertise for the supply of quality reagents for precise diagnosis or serotype, detailed antigenic analysis and molecular epidemiological studies to compare the outbreaks of strains with vaccine viruses.

4. The vaccine production facilities

available in the country both in the public and private sector need to be strengthened further to produce quality vaccines required for the control programme.

5. Collaboration with International agencies to keep abreast with the technological developments and for generation of resources.

Attention Readers

The ICAR brings out a number of publications on Agriculture, Animal Husbandry, Horticulture, Fisheries and its allied subjects. To project its publications among students, research scholars, extension workers, scientists and faculty members, the Business Unit of the Directorate of Information and Publications of Agriculture of the ICAR arranges Book Exhibitions in the campuses of the Agricultural Universities. If you want to hold a Book Exhibition, you may send your request through your Departmental Head/Dean to the Business Manager of the ICAR, preferably 1 month in advance, so that a good Book Exhibition could be arranged in time. The students can avail a handsome discount on the ICAR publications including journals.

For further details, please write to:

The Business Manager

Directorate of Information and Publications of Agriculture
Indian Council of Agricultural Research
Krishi Anusandhan Bhavan, Pusa
New Delhi 110 012.

Our salvation can only come through the farmer. Neither the lawyer, nor the doctor, nor the rich landlord are going to secure it

—Mahatma Gandhi